

181st INF BDE

Combat Lifesaver

Plus

Head Trauma



Overview

Anatomy of head and brain

Pathophysiology of traumatic injury

Assessment, management, potential problems

Head Trauma

Traumatic brain injury (TBI)

- Major cause of death and disability
- Present in 40% of multiple trauma casualties

Head Trauma

Open

- Skull compromised and brain exposed



Closed

- Skull not compromised and brain not exposed



Head Injuries

Scalp wound

- Highly vascular, bleeds briskly
 - Shock: child may develop
 - Shock: adult another cause
- Management
 - No unstable fracture: direct pressure, dressings
 - Unstable fracture: dressings, avoid direct pressure



Head Injuries

Skull fracture

- Linear nondisplaced
- Depressed
- Compound



Suspect fracture

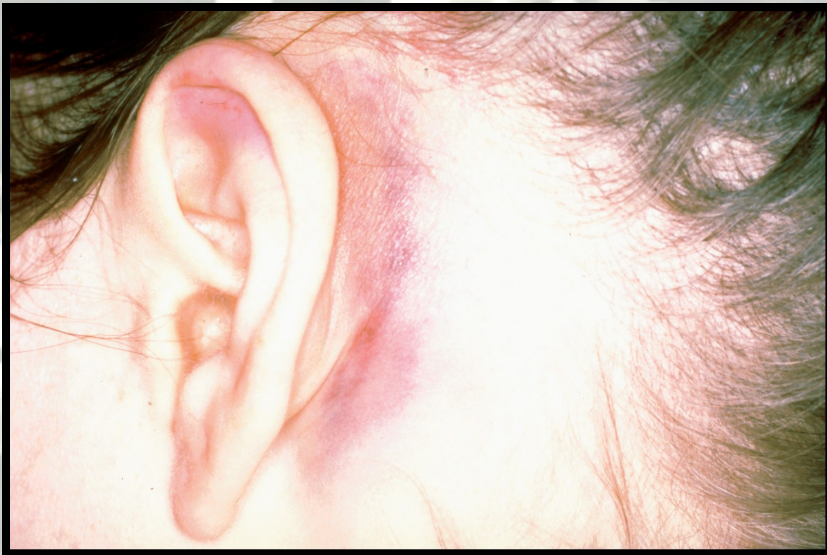
- Large contusion or darkened swelling

Management

- Dressing, avoid excess pressure

Basilar Skull Fracture

Battle's sign



Raccoon eyes



Head Injuries

Penetrating trauma



Bullet Fragments

**Forces that cause skull fracture
can also cause brain injury.**

Brain Injury

Primary brain injury

- Immediate damage due to force
- Coup and contracoup

Management

- Directed at prevention



Brain Injury

Secondary brain injury

- Results from hypoxia or decreased perfusion
- Develops over hours

Management

- Rapid evacuation care can help prevent



**Early efforts
to maintain brain perfusion
can be life-saving.**

Brain Injuries

Concussion

- No structural injury to brain
- Level of consciousness
 - Variable period of unconsciousness or confusion
 - Followed by return to normal consciousness
- Retrograde short-term amnesia
 - May repeat questions over and over
- Associated symptoms
 - Dizziness, headache, ringing in ears, and/or nausea

**Decreased level of consciousness
is an early indicator of
brain injury or rising ICP**

Head Trauma Assessment

Casualty Evaluation

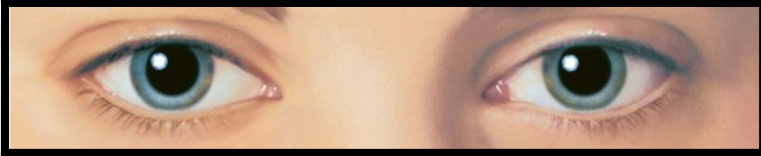
Limit patient agitation, straining

- Contributes to elevated ICP

Airway

- Vomiting very common within first hour

Pupils

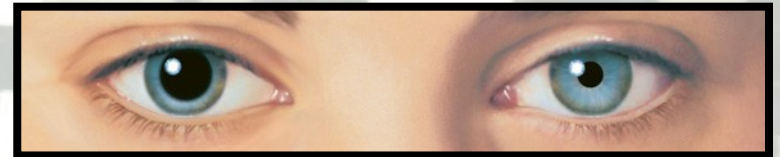


Both dilated

- Nonreactive: brainstem
- Reactive: often reversible

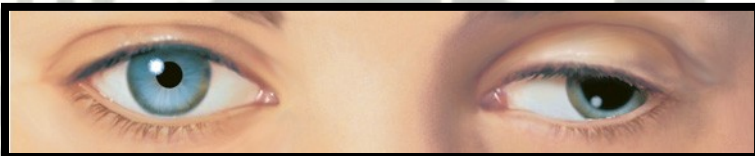


Anisocoria



Unilaterally dilated

- Reactive: ICP increasing
- Nonreactive (altered LOC): increased ICP
- Nonreactive (normal LOC): not from head injury



Eyelid closure

- Slow: cranial nerve III
- Fluttering: often hysteria

Summary

Early detection and rapid transport is essential

Key actions

- Rapid assessment, airway management, prevent hypotension, frequent Ongoing Exams
- Altered mental status is common

Discussion

